

## **Primary Raynaud's syndrome**

### **Role of the microcirculatory functional investigational methods in disease diagnosis and prognosis**

The aim of my work was to study the role of microcirculatory functional investigational methods in diagnosing, follow up disease course, planning therapy and establishing prognosis in patients with Raynaud's symptomatology. In my Raynaud's syndrome patients I have examined the single and combined use of three non-invasive methods: capillary microscopy, hand perfusion scintigraphy and laser doppler imaging. The number of patients and the patients groups composition differed in the subsequent studies. The introduction contains the general knowledge about Raynaud's syndrome with special emphasis on diagnostic possibilities, their advantages and drawbacks. Separate chapters present the methods used and the ways of result assesment in my studies: capillary microscopy, hand perfusion scintigraphy and laser doppler imaging. The measurements can be divided in two theoretical groups. One group contains the results of the hand perfusion measurements alone. In this study I found difference between the digital circulation of patients with primary and secondary Raynaud's syndrome. In the secondary group regional flow disturbances were found more often. The primary Raynaud's patient population was characterised by lower FPR (finger to palm ratio) digital circulation. I could also demonstrate relationship between the amplitude of finger circulation and the patients age at disease startup. Opposite to this finding, I did not found any difference between the patients age and disease duration. In the other group of studies I examined primary Raynaud's patients with all the three above mentioned non-invasive functional methods. Capillary microscopy did not characterise the disease, as in the majority of cases I found normal capillary pattern. The laser doppler results showed, that in primary Raynaud's patients the hand circulation is globally lower than the one found in healthy controls but their vascular reserve (characterised by the reactive hyperaemia following suprasystolic occlusion) did not differ from the healthy group. I also found difference between the size of vascular reserve (measured with laser doppler imaging) and finger circulation (characterised by FPR) in smoker and non-smoker primary Raynaud's patients. To gain more complex data about the disease and for better patient care, based on my results, I propose that in patients with Raynaud's phenomenon beneath capillary microscopy it is indispensable to perform functional examinations of the finger circulation: laser doppler imaging and hand perfusion scintigraphy.